

536,914

Rec'd 31 MAY 2005

## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
17 June 2004 (17.06.2004)

PCT

(10) International Publication Number  
**WO 2004/051668 A1**

- (51) International Patent Classification<sup>7</sup>: **G11C 17/16**
- (21) International Application Number:  
**PCT/IB2003/004939**
- (22) International Filing Date: 31 October 2003 (31.10.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
02080119.7 5 December 2002 (05.12.2002) EP
- (71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).**
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **PHAM, Chau, BA [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). SLENTER, Andre, G., J. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). CALAERTS, Geert, G. [BE/BE]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). HEMINGS, Michael, C. [GB/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). NGUYEN, Duy [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).**
- (74) Agent: **DE JONG, Durk, J.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).**
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

## Declaration under Rule 4.17:

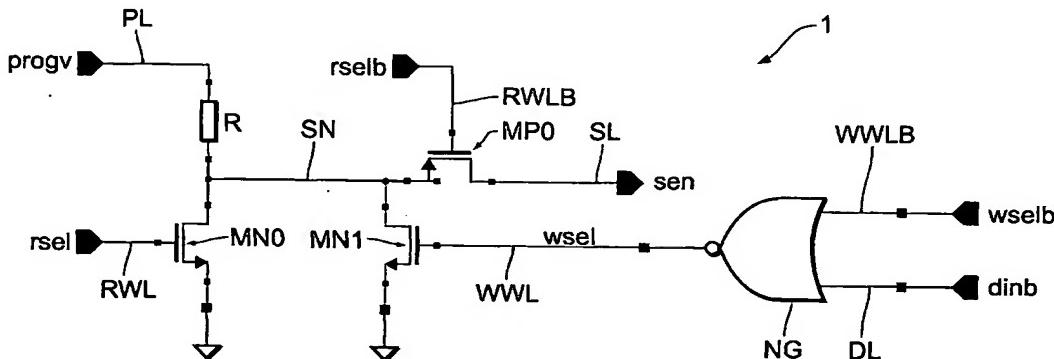
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

## Published:

— with international search report

[Continued on next page]

(54) Title: PROGRAMMABLE NON-VOLATILE SEMICONDUCTOR MEMORY DEVICE



WO 2004/051668 A1

(57) Abstract: The present invention relates to a programmable non-volatile semiconductor memory device comprising a matrix of rows and columns of memory cells (1). To reduce the required memory area a 3T memory cell is proposed comprising a bridge of two bridge transistors (MN0, MN1), preferably NMOS transistors, a read transistor, preferably an PMOS transistor, and a silicided polysilicon fuse resistor (R). The read transistors enable the use of a single sense line (SL) for all memory cells (1) of the same row or column in the matrix thus enabling the use of a common sense amplifier for sensing memory cells (1).

W 2004/051668 A1



*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*